PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
SJC/DMC/P02113WO		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/GB 03/04327	01.10.2003	01.10.2002

International Patent Classification (IPC) or both national classification and IPC

B60C23/04

Applicant

HASWELL MOULDING TECHNOLOGIES LIMITED

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
03.05.2004	14.01.2005

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB 03/04327

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished t the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages	
1-18	as originally filed
Claims, Numbers	
1-10	received on 22.12.2004 with letter of 17.12.2004
Drawings, Sheets	
1/9-9/9	as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   - ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
   - ☐ the language of publication of the international application (under Rule 48.3(b)).
   - ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   - ☐ contained in the international application in written form.
   - ☐ filed together with the international application in computer readable form.
   - ☐ furnished subsequently to this Authority in written form.
   - ☐ furnished subsequently to this Authority in computer readable form.
   - ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
   - ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

   - ☐ the description, pages:
   - ☐ the claims, Nos.:
   - ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to th report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-10
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-10
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-10
	No:	Claims	

2. Citations and explanations

   see separate sheet

To Chapter V.2.

Reference is made to the following document:

D1: US-B-6 243 0071 (MCLAUGHLIN JOHN T ET AL) 5 June 2001 (2001-06-05)

V.2.1. Independent Claim 1

V.2.1.1. Novelty

Document D1 discloses a method for selectively controlling the power consumption of a telemetry unit (Fig. 10, 11, 13) having a power source (404), the unit including a micro processor (Fig. 3a), a data measurement circuit (Fig. 3a, "TEMP", "PR-SNS"), and a data transmission circuit (Fig. 3b), in which the method incorporates a power consumption protocol (Fig. 10) including the successive steps of:
initiating power to the data measurement circuit (210, 226) for measuring data from the environment local to the unit;
disabling power to the data measurement circuit (230);
initiating power to the data transmission circuit (216, 308);
transmitting the measured data (310); and
disabling power to the transmission circuit (312).

Claim 1 differs therefrom in that the power is generated by a piezoelectric power generator and in that the protocol further includes a sleep mode, wherein the length of the sleep mode is varied in dependence on the amount of charge stored in the storage device, or upon the rate at which electric charge is generated by the generator.

Therefore, the subject-matter of the present claim 1 fulfils the provisions of Art. 33 (2) PCT (Novelty) in view of the state of the art as mentioned in the search report.

V.2.1.2. Inventive Step

The problem to be solved by the present invention may therefore be regarded as prolonging the life time functionality of the telemetry unit.

Whereas the feature of monitoring the actual available electric power is not contained in or does not be rendered obvious from the state of the art as mentioned in the search

report.

The present claim 1 fulfils therefore the provisions of Art 33 (3) PCT.

V.2.1.3. Industrial Applicability

Claim 1 fulfils the provisions of Art. 33 (4) PCT, because corresponding methods can be used in the automotive industry.

V.2.2. Dependent Claims 2-10

Claims 2-10 depending on claim 1 and having as subject-matter special and advantageous embodiments of the invention according to claim 1 fulfil, together with its subject-matter, the provisions of Art. 33 and Rule 6 PCT.

Claims

1. A method for selectively controlling the power consumption of a telemetry unit having a power source, the unit including a micro processor, a data measurement circuit, and a data transmission circuit, in which the method incorporates a power consumption protocol including the successive steps of: initiating power to the data measurement circuit for measuring data from the environment local to the unit; disabling power to the data measurement circuit; initiating power to the data transmission circuit; transmitting the measured data; and disabling power to the transmission circuit.

2. A method as claimed in claim 1, in which the measured data is stored in the microprocessor before disabling power to the data measurement circuit.

3. A method as claimed in claim 1 or 2, in which the protocol is cyclic.

4. A method as claimed in any of claims 1 to 3, in which the protocol includes a sleep mode between the transmission of data and the initialising of power to the measurement circuit.

5. A method as claimed in any of claims 1 to 4, in which the protocol initialises power to the data measurement circuit after a predetermined time from the disabling of power to the transmission circuit.

6. A method as claimed in claim 5, in which the microprocessor monitors the time from the disabling of power to the transmission circuit.

7. A method as claimed in claim 6, in which the microprocessor monitors the time from the disabling of power to the transmission circuit via an externally referenced clock.

8. A method as claimed in claim 7, in which the microprocessor switches from the externally referenced clock to an internal clock, after the predetermined time.

9. A method as claimed in claim 8, when dependent upon claim 2, in which the microprocessor switches to the externally referenced clock after the measured data has been stored.

10. A method as claimed in any preceding claim, in which a predetermined time is allowed to elapse between initialising power to the data measurement circuit and the measurement of data.

11. A method as claimed in any preceding claim, in which a predetermined time is allowed to elapse between initialising power to the data transmission circuit and transmission of the measured data.

12. A method as claimed in any preceding claim, in which the power source comprises an electrical generator and a storage device for storing electrical charge.

13. A method as claimed in claim 12, in which the generator is a piezoelectric generator.

14. A method as claimed in claim 12 or claim 13, when dependent on claim 4, in which the length of the sleep mode is varied in dependance on the amount of charge stored in the storage device or upon the rate at which electric charge is generated by the generator.

15. A method as claimed in any preceding claim, in which the telemetry unit forms part of a tyre monitoring system.